

PO Box 339  
104 South Sansome Street  
Philipsburg, Montana 59858-0339  
406-859-3821  
FAX 406-859-3821

# Town of Philipsburg

RECEIVED

MAY 12 2010

D.N.R.C.

May 11, 2010

RE: Fred Burr Emergency Action Plan Update 2010

Dear Emergency Action Plan Holder,

Please replace the following pages in the Fred Burr Emergency Action Plan(s) that you currently have:

Title Page

Page 3 of 11


Page 5 of 11

Page 7 of 11

Page 11 of 11

All of Appendix C – Telephone Directory

Thank You,



Richard R Hoehne

Director of Public Works

PO Box 339  
104 South Sansome Street  
Philipsburg, Montana 59858-0339  
406-859-3821  
FAX 406-859-3821

Town of Philipsburg

RECEIVED

JUN 22 2009

D.N.R.C.

June 15, 2009

RE: Fred Burr Emergency Action Plan

Dear Emergency Action Plan Holder,

Please replace the Fred Burr Emergency Action Plans that you have with the enclosed document.

Thank You,



Richard R Hoehne

Director of Public Works

**EMERGENCY ACTION PLAN**

**FRED BURR LAKE DAM**

**TOWN OF PHILIPSBURG  
P.O. Box 339  
Philipsburg, Montana 59858-0339**

**May 7, 2010**

**If FRED BURR LAKE DAM is failing or failure seems imminent, call:**

**Granite County Sheriff..... 911**

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I. INTRODUCTION

A. Purpose

The purpose of this emergency action plan (EAP) is primarily to safeguard lives and secondarily to reduce property damage to the citizens of Granite County living near the town of Philipsburg and along Fred Burr Creek in the event of flooding caused by a failure of FRED BURR LAKE DAM.

B. Description of Dam

FRED BURR LAKE DAM is in Granite County, in **Section 36, Township 7 North (T7N), Range 13 West (R13W)**, and located on Fred Burr Creek, a tributary of Flint Creek which is a tributary of The Clark Fork River in the Columbia River Basin. It is owned by the **TOWN OF PHILIPSBURG, P.O. Box 339, Philipsburg, Montana 59858-0339**, and is used for municipal water supply purposes. Technical data pertaining to FRED BURR LAKE DAM and its structures are shown in Appendix A.

C. Access to Dam

FRED BURR LAKE DAM is located approximately 7.6 miles south-east of Philipsburg, MT on **Forest Service Roads #1525 and 1534** in the Flint Creek mountain range. The nearest homeowner is Dan and Roberta Keneally, about 4.1 miles downstream of the dam, on Fred Burr Creek.

D. Hazard Area

The evacuation area extends along Fred Burr Creek to a point about 3.79 miles from State Highway MT 1, as shown in Appendix B. Hazards include the possible inundation of occupied dwellings, State Highway MT 1 and a number of private, county and State bridge crossings. Inundation and evacuation maps are in Appendix B.

E. Responsibility and Authority


Pursuant to the Dam Safety Act, Chapter 15 of Title 85, MCA, the dam owner is responsible for production, coordination, maintenance, and implementation of this emergency action plan. The extent of owner implementation was defined through coordination of this plan with the county sheriff and the disaster and emergency services (DES) coordinator.

F. Periodic Review/Update

The owner will review/update this EAP annually. Review/update by a qualified professional engineer will be accomplished as required by the dam's operating permit, but no less than every five years.

G. Approval

By my signature, I acknowledge that I, or my representative, have reviewed this plan and agree to the tasks and responsibilities assigned herein for my department and/or agency.

 5/10/10  
Signature Date

GRANITE COUNTY SHERIFF'S DEPARTMENT

 5-10-10  
Signature Date

OWNER, TOWN OF PHILIPSBURG

 5-10-10  
Signature Date

DISASTER AND EMERGENCY SERVICES

## II. NOTIFICATION PROCEDURES

### A. Imminent or Actual Failure

#### **If Fred Burr Lake Dam Is Failing, Two Things Must Be Done Immediately:**

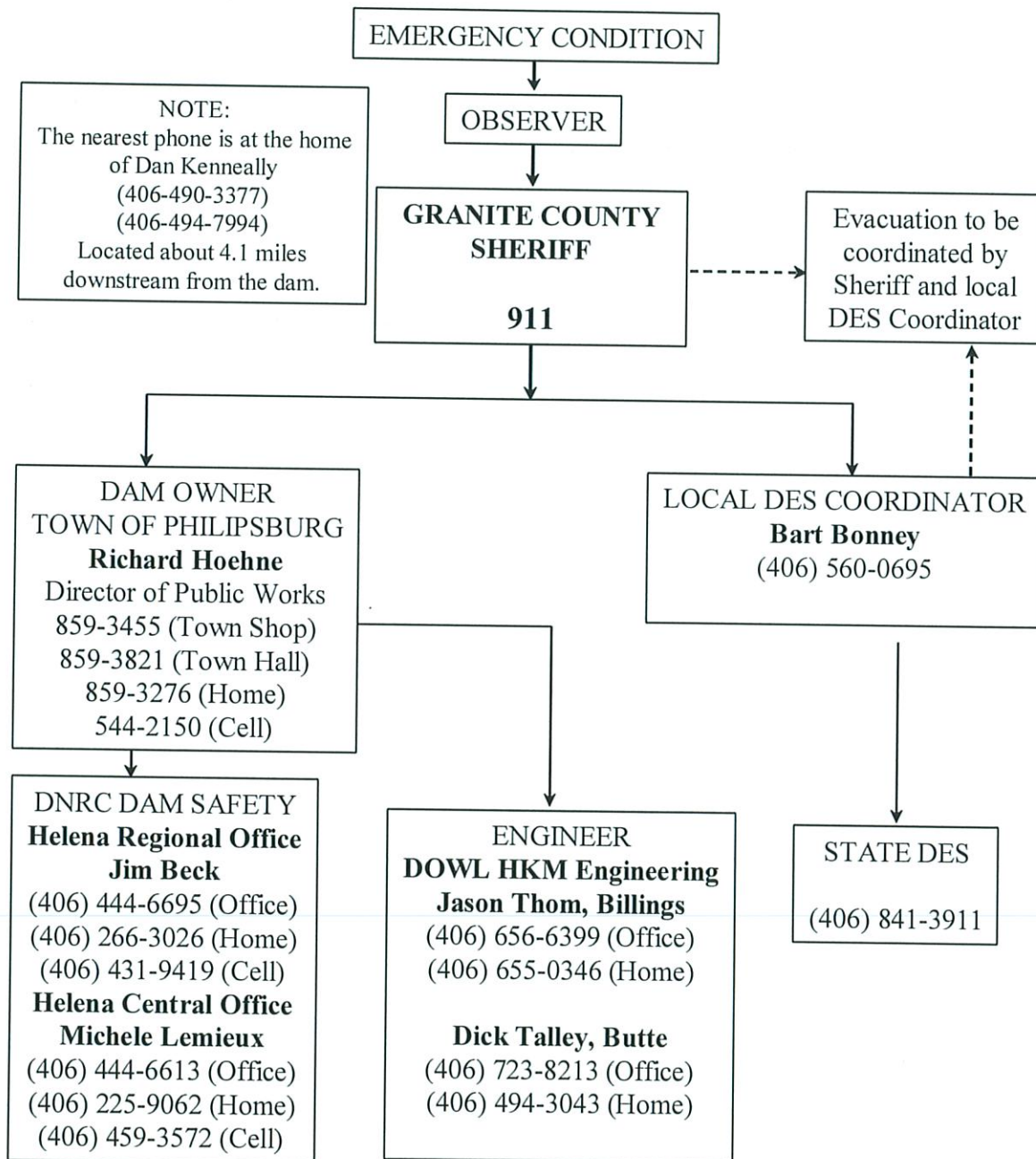
- (1) Residents in the hazard area downstream from the dam must be warned according to the county warning plan, and initiated as shown in Figure 1, and
- (2) Any steps that might save the dam or reduce damage to the dam or hazard area downstream should be taken. (Refer to the map in Appendix B to determine the areas that are likely to be inundated if the dam fails).

As dam owner, it is your responsibility to:

1. Call the Sheriff's Dispatch Center **911** and Disaster and Emergency Service **(406) 560-0695**, if they have not already been notified. Be sure to say, "This is an emergency." They will call other authorities and the media and begin the warning plan.
2. Warn anyone in immediate danger to evacuate to safety. This includes someone on the dam, directly below the dam, or downstream evacuees, if so directed by the sheriff.
3. Contact the Disaster and Emergency Services staff at least once every hour. They may request your assistance in evacuating residents.
4. If all means of communication are lost:
  - a. Try to find out why
  - b. Get someone else to try to reestablish communications. If these means fail, take care of immediate problems and send someone to get to another radio or telephone that works.



**FIGURE 1**  
**FRED BURR LAKE DAM**  
**ACTUAL OR IMMINENT FAILURE**  
**NOTIFICATION FLOWCHART**





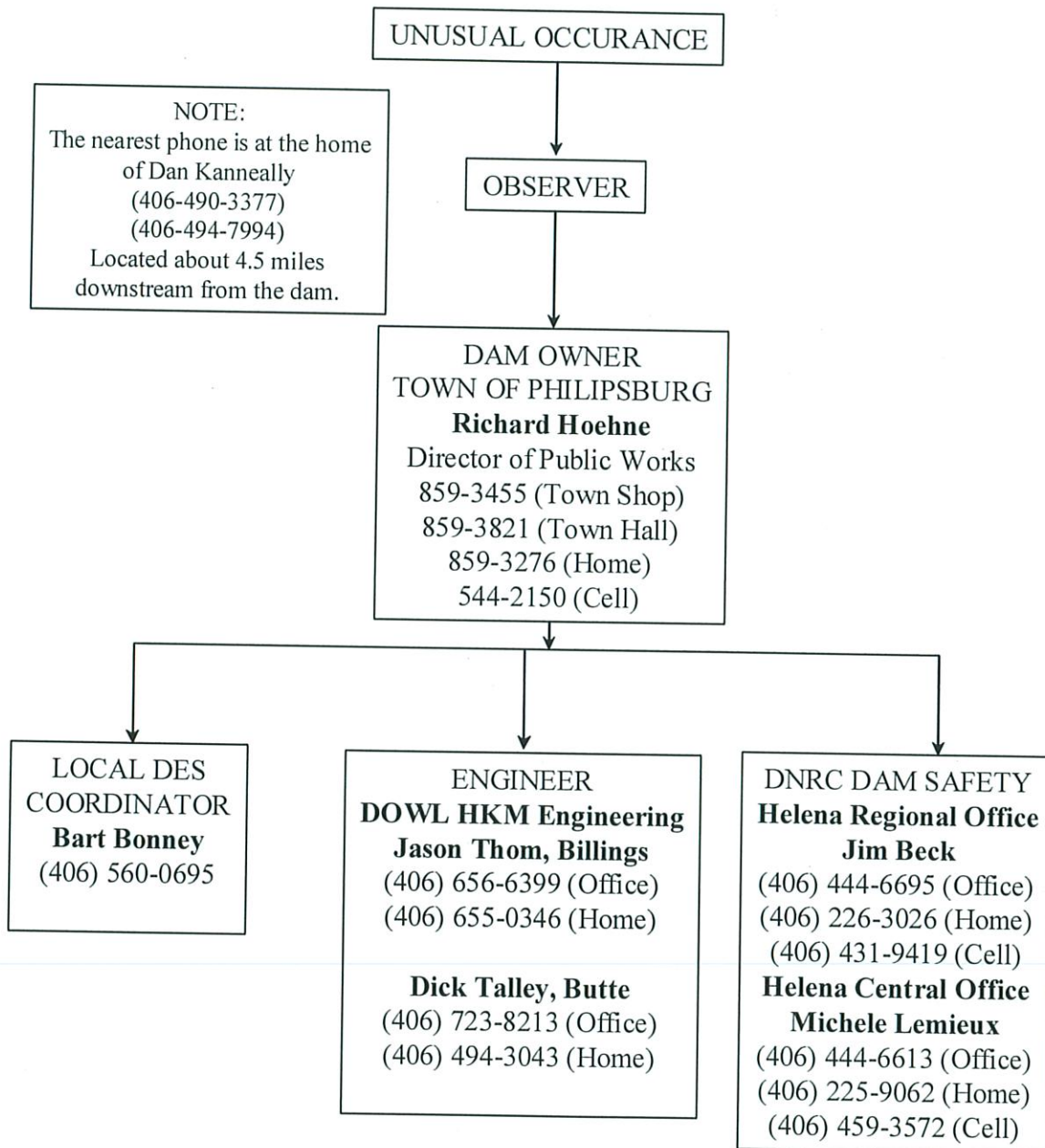
**B. Potentially Hazardous Situation**

A potentially hazardous situation is an event or condition not normally encountered in the routine operation of the dam and reservoir. Among the unusual occurrences that may affect the dam are dam embankment problems (see section B.2.), failure of the spillway or outlet works, heavy precipitation or rapid spring snow melt, landslides, earthquakes, erosion, theft, vandalism, acts of sabotage, and serious accidents. These occurrences may endanger the dam, the public, or the downstream valley and may necessitate a temporary or permanent revision of the dam's operating procedures. Help in these situations can be obtained by notifying those people shown in Figure 2.

1. If the dam owner discovers an unusual condition of the dam embankment that could threaten the structure:
  - a. Have a qualified engineer inspect the dam as soon as possible to determine whether emergency action is necessary.
  - b. Notify the county Disaster and Emergency Services Coordinator **(406) 560-0695** of the potential problem.
  - c. Contact the Dam Safety Program **444-6613** of the Department of Natural Resources and Conservation (DNRC).
2. Among the conditions the dam owner should watch for are:
  - a. Overtopping of the dam by flood waters
  - b. Loss of material from the dam crest due to storm wave erosion
  - c. Slides on either the upstream or downstream slope of the embankment as evidenced by
    1. Sloughing
    2. Cracking
    3. Bulging
    4. Scarping

**FIGURE 2**

**FRED BURR LAKE DAM  
POTENTIALLY HAZARDOUS SITUATION  
NOTIFICATION FLOWCHART**



- d. Erosional flows through, beneath, or around the embankment as evidenced by
    - 1. Excessive seepage
    - 2. Discoloration of the seepage
    - 3. Boils on the downstream side
    - 4. Sinkholes
    - 5. Changes in the flow from drains
  - e. Failure of outlets or spillways due to clogging or erosion
  - f. Movement of the dam on its foundation as evidenced by
    - 1. Misalignment
    - 2. Settlement
    - 3. Cracking
3. Before calling either an engineer or DNRC to report a problem, the dam owner shall use the form in Appendix D to ensure sufficient information is provided for the engineer to analyze the problems. After talking to the engineer, it may be helpful to document the condition of the dam by making a sketch on the form in Appendix D, showing the extent of the problem. Revise the sketch periodically if the problem develops further. Section III includes further guidelines for courses of action to take to mitigate the effect of many problems.

C. Posting of the Notification Flowchart and Distribution of the EAP

The Notification Flowchart is posted at the Town Shop and at the Town Hall. The Granite County Sheriff's Office and the Granite County DES Coordinator have copies of the plan.

III. MITIGATION ACTIONS

Besides normal monitoring of the dam's condition, which is done at least monthly, the owner will provide continuous monitoring and inspection during and after extreme events such as storms and earthquakes. Information on the magnitude of an earthquake or storm can be obtained from the



DNRC Dam Safety Program **(406) 444-6613**. Actions are suggested below to mitigate problems that may develop, but those actions should never be continued at the risk of injury or at the expense of lessening efforts related to evacuation. Monitoring should identify any of the following potential problems.

A. Potential Problems and Immediate Response Actions

1. OVERTOPPING BY FLOOD WATERS

- a. Open outlet to its maximum safe capacity.
- b. Place sandbags along the crest to increase freeboard and force more water through the spillway and outlet.
- c. Provide erosion-resistant protection to the downstream slope by placing plastic sheets or other materials over eroding areas.
- d. Divert flood waters around the reservoir basin, if possible.
- e. Create additional spillway capacity by making a controlled breach in a low embankment or dike section where the foundation materials are erosion-resistant.

2. LOSS OF FREEBOARD OR DAM CROSS SECTION DUE TO STORM WAVE EROSION

- a. Place additional riprap or sandbags in damaged areas to prevent further embankment erosion.
- b. Lower the water level to an elevation below the damaged area.

3. SLIDES IN THE UPSTREAM OR DOWNSTREAM SLOPE OF THE EMBANKMENT

- a. Lower the water level at a rate and to an elevation considered safe, given the slope condition. If the outlet is damaged or blocked, pumping, siphoning, or a controlled breach may be required.
- b. Stabilize slides on the downstream slope by
  1. Weighting the toe area with additional soil, rock, or gravel, and then
  2. Restoring lost freeboard by placing sandbags at the crest.



4. EROSIONAL FLOWS THROUGH THE EMBANKMENT, FOUNDATION, OR ABUTMENTS
  - a. Plug the flow with whatever material is available (hay bales, bentonite, or plastic sheeting if the entrance to the leak is in the reservoir basin).
  - b. Lower the water level until the flow decreases to a non-erosive velocity or stops.
  - c. Place a protective sand-and-gravel filter or boil ring over the exit area to hold materials in place.
5. FAILURE OF APPURTENANT STRUCTURES SUCH AS OUTLETS OR SPILLWAYS
  - a. Implement temporary measures to protect the damaged structure, such as closing an outlet or protecting a damaged spillway with riprap.
  - b. Lower the water level to a safe elevation. If the outlet is inoperable, pumping, siphoning, or a controlled breach may be required.
6. MASS MOVEMENT OF THE DAM ON ITS FOUNDATION (SPREADING OR MASS SLIDING FAILURE)
  - a. Immediately lower the water level until excessive movement stops.
7. EXCESSIVE SEEPAGE AND HIGH LEVEL SATURATION OF THE EMBANKMENT
  - a. Lower the water to a safe level.
  - b. Continue frequent monitoring for signs of slides, cracking or concentrated seepage.
8. SPILLWAY BACKCUTTING, THREATENING RESERVOIR EVACUATION
  - a. Reduce the flow over the spillway by fully opening the main outlet.
  - b. Provide temporary protection at the point of erosion by placing sandbags, riprap materials, or plastic sheets weighted with sandbags.
  - c. When the inflow subsides, lower the water to a safe level.
9. EXCESSIVE SETTLEMENT OF THE EMBANKMENT
  - a. Lower the water level by releasing it through the outlet pumping, siphoning, or a controlled breach.
  - b. If necessary, restore freeboard, preferably by placing sandbags.

B. Emergency Supplies and Resources

There is a supply of rock and sand at the north end of the dam.

C. Local Contractors and Engineers

Local Contractors:

**Groomes Excavating:** ..... 859-3306  
.....Cell – 531-4160  
**Grizzly Hauling and Excavating** ..... 406-360-5102  
**McDonald Excavating:** ..... 859-3134  
..... Cell – (406) 949-7019  
**Mungas Co. Inc.:** .....Office - 859-3203  
..... Ray's Cell – (406) 439-1156;  
.....Sharon's Home – 859-3350  
..... Joe's Home – (406) 949-3294  
**Prospect Construction:** ..... 859-3526  
**Ike Whittlesey** ..... 859-0648

Engineer:

**DOWL HKM Engineering**

**Jason Thom, Billings:** ..... Office – (406) 656-6399  
.....Home – (406) 655-0346  
..... Cell – (406) 861-9562  
**Dick Talley, Butte:** ..... Office – (406) 723-8213  
.....Home – (406) 494-3043  
..... Cell – (406) 491-1416

Helicopter Services:

**Heli-Works Flight Service** ..... Office – (406) 843-1388  
..... Cell – (406) 560-0024  
**Minutemen Aviation Inc.** ..... Office (406) – 728-9363

## APPENDICES

## APPENDIX A Technical Data



## APPENDIX A

### Technical Data for FRED BURR LAKE DAM

Maximum Reservoir Capacity to the Crest of the Dam: ..... 1900 acre feet

Normal Reservoir Capacity Measured to the Emergency Spillway  
Crest: ..... 1730 acre feet

Normal Water Depth Measured from the Streambed to the Crest of the Emergency  
Spillway ..... 19 feet

Dam Height Measured from the Streambed to the Crest of the Dam: ..... 21 feet

Dam Crest Width: ..... appx. 12 feet

Length of Dam Crest: ..... 267 feet

Outlet Capacity: ..... 5 cubic feet per second

Spillway Capacity ..... appx. 20 cubic feet per second

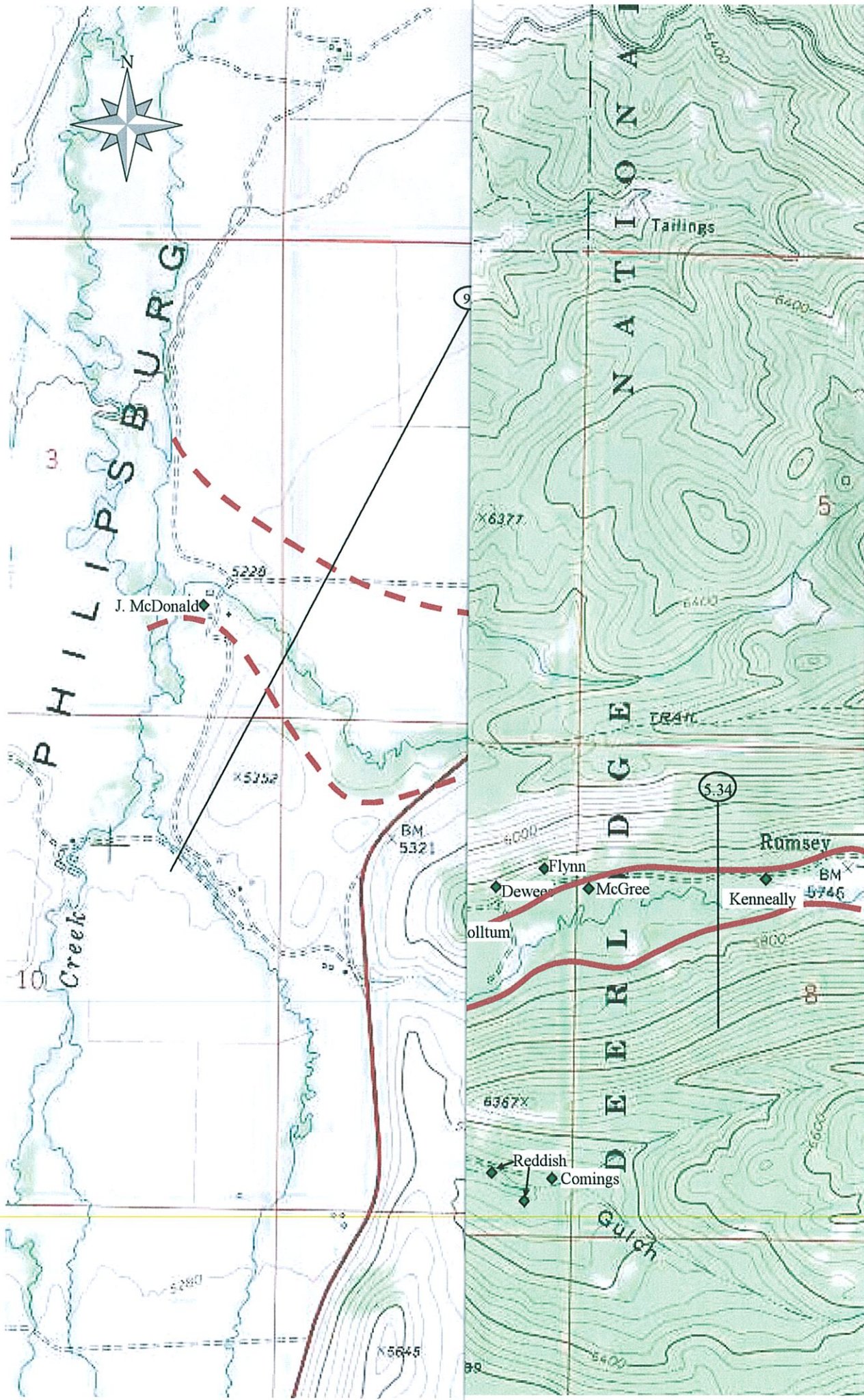
Date Constructed ..... 1937

Slope of Upstream Face of Dam (Horizontal to Vertical) ..... 3:1 (estimated)

Slope of Downstream Face of Dam (Horizontal to Vertical) ..... 2:1 (estimated)

## APPENDIX B Inundation and Evacuation Maps

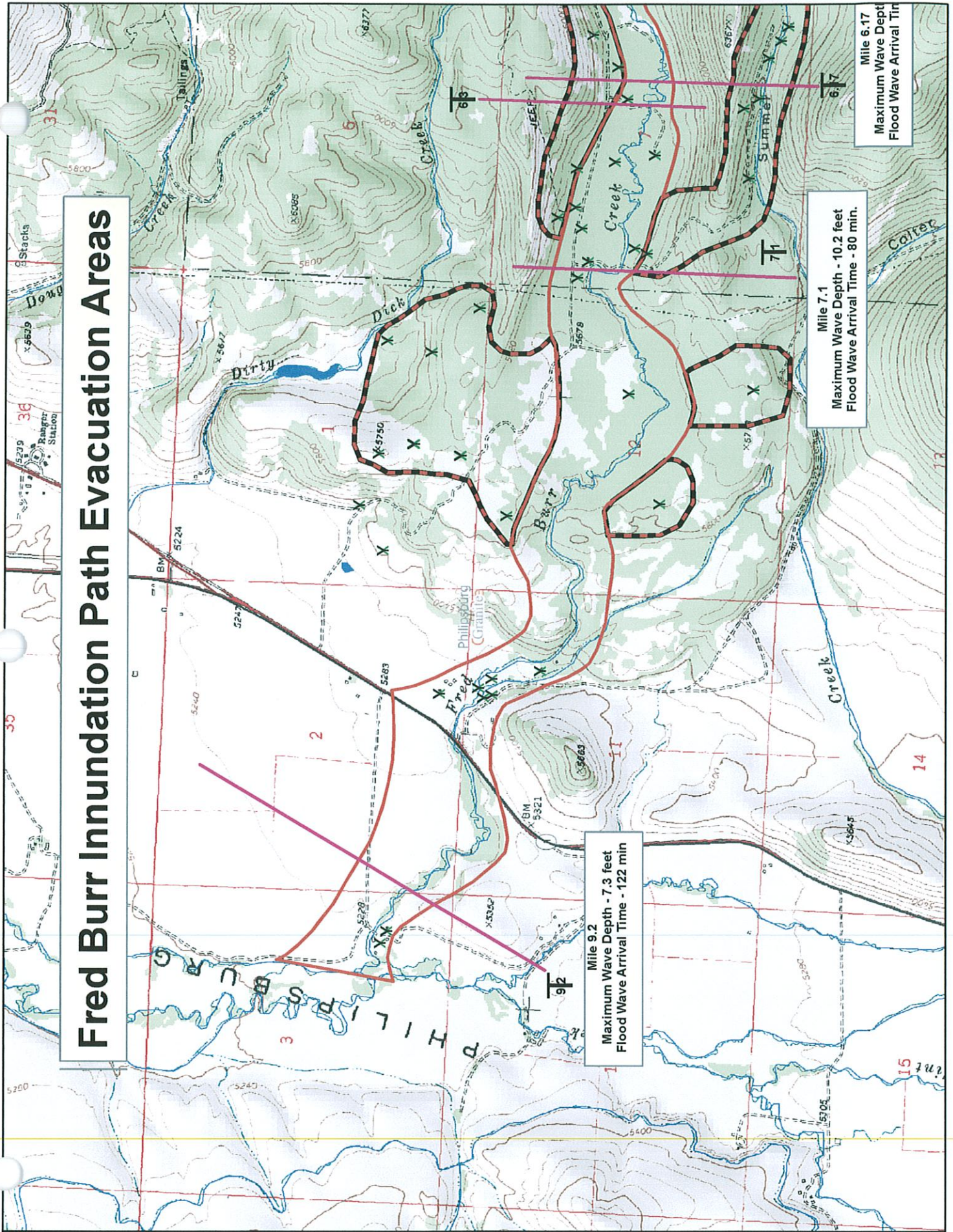




# FRED BURR LAKE DAM EMERGENCY EVACUATION AREA MAP



# Fred Burr Innundation Path Evacuation Areas





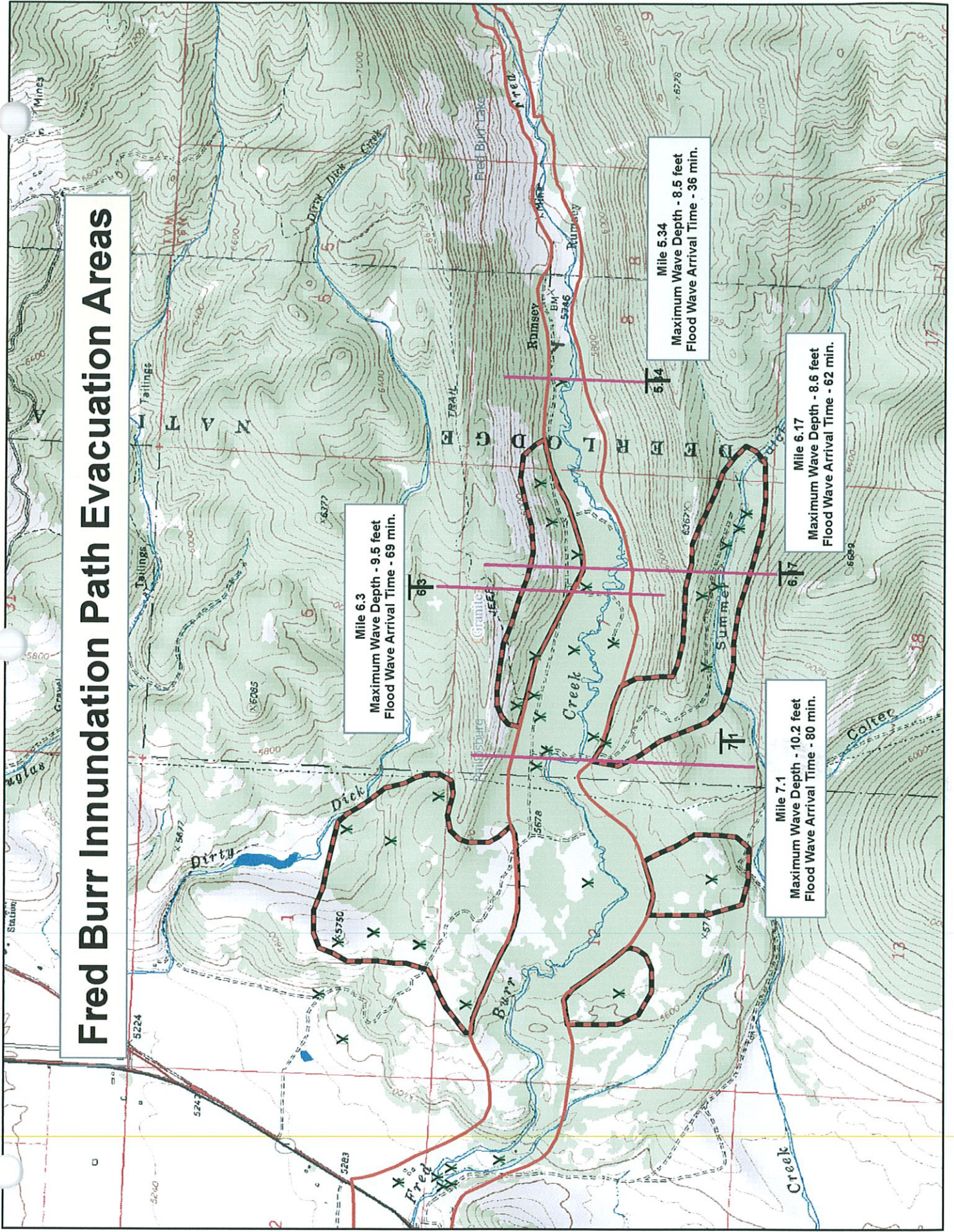
# Fred Burr Innundation Path Evacuation Areas

Mile 6.3  
Maximum Wave Depth - 9.5 feet  
Flood Wave Arrival Time - 69 min.

Mile 5.34  
Maximum Wave Depth - 8.5 feet  
Flood Wave Arrival Time - 36 min.

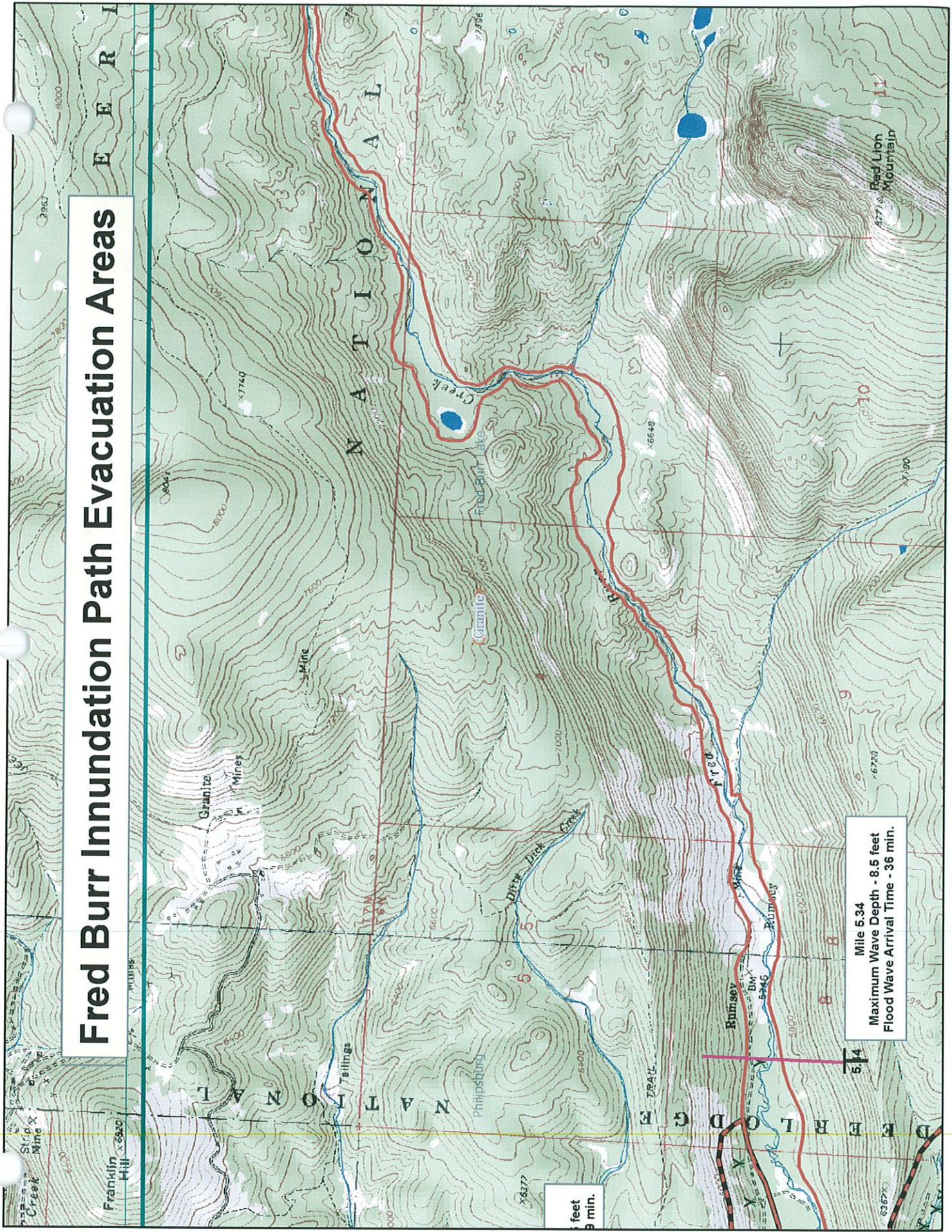
Mile 6.17  
Maximum Wave Depth - 8.5 feet  
Flood Wave Arrival Time - 62 min.

Mile 7.1  
Maximum Wave Depth - 10.2 feet  
Flood Wave Arrival Time - 80 min.





# Fred Burr Innundation Path Evacuation Areas

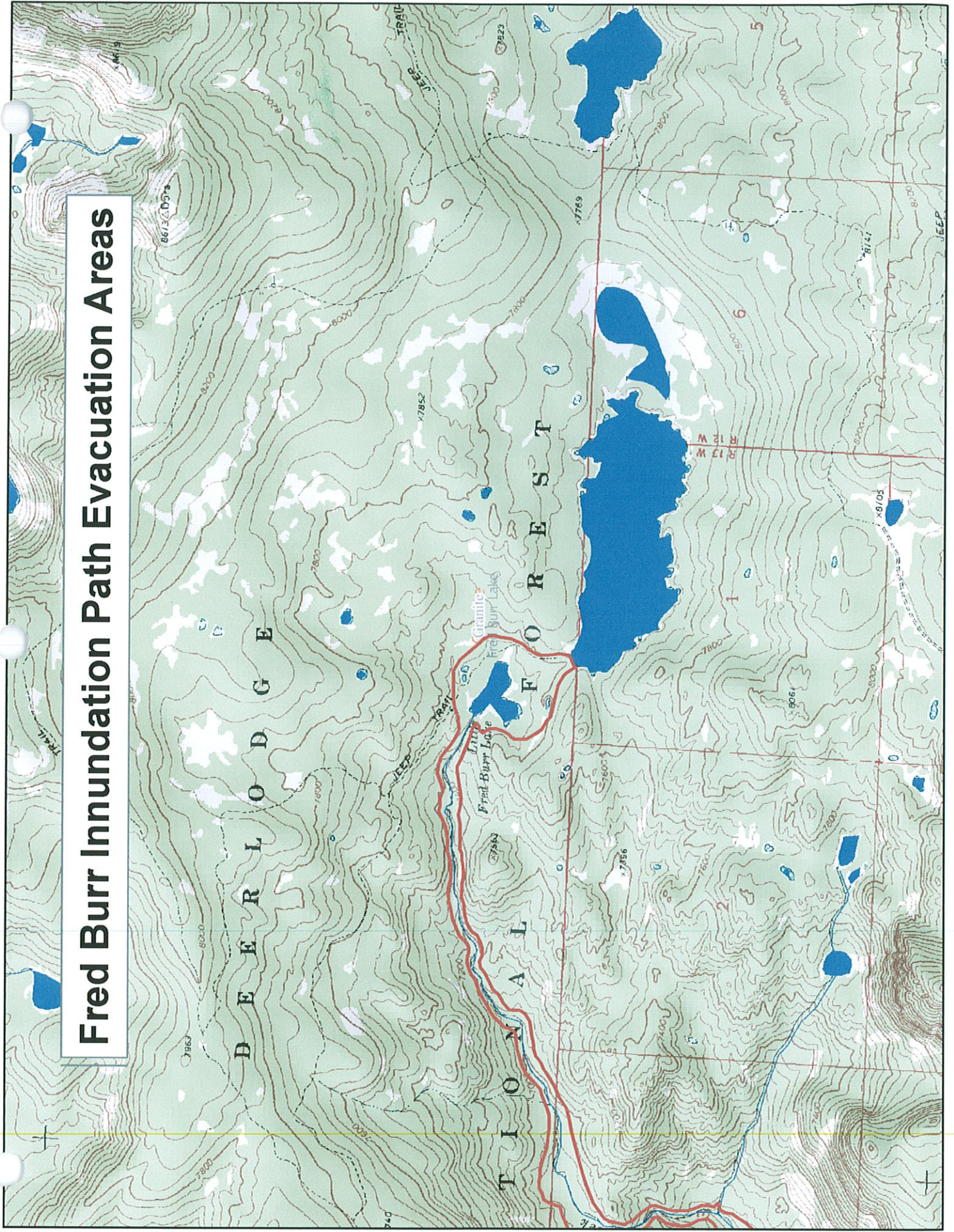


Mile 5.34  
Maximum Wave Depth - 8.5 feet  
Flood Wave Arrival Time - 36 min.

1/2 mile  
1 mile



# Fred Burr Innundation Path Evacuation Areas





## APPENDIX C Telephone Directory



## Appendix C TELEPHONE DIRECTORY

### **A. Priority One**

1. **SHERIFF** Granite County .....911
2. **DISASTER AND EMERGENCY SERVICES** Granite County ..... (406) 560-0695  
     Montana Disaster and Emergency Services Division (Helena)..... (406) 841-3911
3. **EVACUEES** (in upstream-to-downstream sequence) **SEE EVACUATION MAP IN APPENDIX B**

Dan & Roberta Kenneally	Fred Burr Creek..... (406) 490-3377, (406) 490-7994
John & Laurie McGree	Fred Burr Creek..... (406) 490-2137, (406) 494-1458
Jim & Marianne Flynn	Fred Burr Creek..... (406) 560-0079
Harold & MaryJane Dewees	Fred Burr Creek..... 859-3967
Carl Holttum & Linda Vanice	Fred Burr Creek..... 859-0090
Ronald Buehler	Fred Burr Creek..... No Phone
Cathleen Irwin & Jeff Stroh	Fred Burr Creek..... No Phone
Holger & Tracy Hahn	Fred Burr Creek..... 859-5058
Michael Palcisko & Teresa Augustine	Fred Burr Creek..... No Phone
Frank Haacke Jr.	Fred Burr Creek..... No Phone
Don & Kathy Doucet	Fred Burr Creek..... No Phone
Todd King	Fred Burr Creek..... 859-3979
Jodi & Keith Linn	Fred Burr Creek..... 859-3115
Glenn & Brenda Boese	Fred Burr Creek..... 859-3115
Clark & Sandra Ridgeway	Fred Burr Creek..... 859-3543
Jessie Henke	Fred Burr Creek..... 859-3645
David Wiley & Ed Lord*	Summers Gulch* ..... 859-3364
Roger Young	Summers Gulch* ..... 859-7777
Jeff Aldredge*	Summers Gulch* ..... No Phone
Roger & Verna Baker*	Summers Gulch* ..... No Phone
Dan Reddish*	Summers Gulch* ..... 859-3544
Jim & Sheila Bloom*	Summers Gulch* ..... 859-4154
Richard & Trudy Sunstrom	Fred Burr Creek..... No Phone
Gary & Susan Sunstrom	Fred Burr Creek..... 859-0022
Richard & Joyce Molteni	Fred Burr Creek..... 859-0082
Robert & Hillary Brooks	Fred Burr Creek..... 859-1414
David & Jenne Pugh	Fred Burr Creek..... 859-1542
Edward Brunsvold	Fred Burr Creek..... No Phone
John & Marlene Chor	Fred Burr Creek..... 859-3423
Everitt Miller	Fred Burr Creek..... 859-0126
Mike Miller	Fred Burr Creek..... 859-3105
John & Marcia Groomes	Fred Burr Creek..... 859-3306
Rosalie Munis	Fred Burr Creek..... 859-3808
Robert & Cary Hogue*	Fred Burr Creek*..... 859-3746
John & Ruth McDonald	Fred Burr Creek..... 859-3869

Continued

Next page  
Appendix C  
TELEPHONE DIRECTORY

Shari Kelley*	Krogers Pond* .....	859-3902
Dean Austin*	Krogers Pond* .....	859-3228
Joe & Barbara Eder*	Krogers Pond* .....	859-5807
Eugene McDonald*	Krogers Pond* .....	859-0117
Merritt & Freddie Della-Rocco*	Rumsey Road* .....	859-7753
Sam & Rosemary Brown*	Rumsey Road* .....	859-3406
Randy Lambeth & Melissa Sartor*	Rumsey Road* .....	No Phone

\* Homes that high water may not affect but access or egress problems may occur.

## **B. Priority Two**

### **4. ENGINEER**

#### DOWL HKM Engineering

Butte (Dick Talley): ..... Office: (406) 723-8213  
..... Home: (406) 494-3043  
..... Cell Phone: (406) 491-1461  
Billings (Jason Thom): ..... Office: (406) 656-6399  
Jason Thom: ..... Home: (406) 655-0346  
..... Cell Phone: (406) 861-9562

### **5. MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION**

Helena Regional Office (Jim Beck): ..... Office: (406) 444-6695  
..... Home: (406) 266-3026  
..... Cell: (406) 431-9419  
Dam Safety Program Engineers: ..... Office: (406) 444-6613  
Ms. Michele Lemieux (Dam Safety Program Manager) ..... Office: (406) 444-6613  
..... Home: (406) 225-9062  
..... Cell: (406) 459-3572  
Water Operations Bureau (Laurence Siroky) ..... Office: (406) 444-6816  
..... Home: (406) 442-2806  
..... Cell Phone: (406) 431-7475

### **6. NATIONAL WEATHER SERVICE**

Great Falls ..... (406) 727-7671  
..... (406) 453-2081  
..... (406) 453-4561  
Missoula ..... 800-676-6975  
..... 329-4718

### **7. TOWN OF PHILIPSBURG**

Director of Public Works: Richard Hoehne ..... Town Shop: 859-3455  
..... Home: 859-3276  
..... Cell: 544-2150  
Town Crew ..... Cell: 544-7891  
Town Clerk: Tomme Carlyon ..... 859-3821

### **8. MONTANA DEPARTMENT OF TRANSPORTATION, Philipsburg ..... 859-3932**

### **9. U.S. FOREST SERVICE, Philipsburg Ranger Station ..... 859-3211**



**APPENDIX D Dam Incident Report Form**

APPENDIX D  
DAM INCIDENT REPORT FORM

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

NAME OF DAM: \_\_\_\_\_

STREAM NAME: \_\_\_\_\_

LOCATION: \_\_\_\_\_

COUNTY: \_\_\_\_\_

OBSERVER: \_\_\_\_\_

OBSERVER TELEPHONE: \_\_\_\_\_

NATURE OF PROBLEM: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

LOCATION OF PROBLEM AREA (Looking Downstream): \_\_\_\_\_

\_\_\_\_\_

EXTENT OF PROBLEM AREA: \_\_\_\_\_

\_\_\_\_\_

FLOW QUANTITY AND COLOR: \_\_\_\_\_

\_\_\_\_\_

WATER LEVEL IN RESERVOIR: \_\_\_\_\_

IS SITUATION WORSENING? \_\_\_\_\_

EMERGENCY STATUS: \_\_\_\_\_

CURRENT WEATHER CONDITIONS: \_\_\_\_\_

\_\_\_\_\_

ADDITIONAL COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## APPENDIX E Plan Distribution List



## APPENDIX E

### Emergency Action Plan Distribution List

<u>PLAN HOLDER</u>	<u>NUMBER OF COPIES</u>
Dam Owner, Town of Philipsburg	3
Dam Tender, Richard Hoehne	1
Granite County Sheriff	1
Local DES Coordinator	1
DNRC Dam Safety Program	1
National Weather Service, Missoula	1
DOWL HKM Engineering, Butte	1
DOWL HKM Engineering, Billings	2
US Forest Service Pintlar Ranger Dist	1